THE SEED

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NEWSLETTER FOR APPLE PEOPLE

DENVER APPLE PI

Best of the holidays from Apple Pi.

denver apple pi Seed

P.O. BOX 17467
DENVER, COLORADO 80217

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MEMBERSHIP INFORMATION
$10 APPLICATION FEE AND $18 PER YEAR DUES

APPLE PI is an Apple Computer Users Group - not affiliated with Apple Computer, Inc. - that provides many member benefits, some of which are:

MONTHLY MEETINGS-

On the first Thursday of each month at 7:00 p.m. APPLE PI holds its general meeting at the Greene Center, Colorado School of Mines Campus, Golden, Colorado. This meeting is a combination of an informational meeting, new product announcements, and a short business meeting. The members are given an opportunity to buy computer supplies a little above cost. Software products are given away as door prizes.

On the Sunday following the general meeting there is an informal meet which is usually held at the home of a member, the location of which is announced in the newsletter and at the general meeting. This meeting is from 10:00 a.m. until 3:00 p.m. and provides a more informal environment to seek or give advice to fellow members and get copies of programs from the APPLE PI Library. Both of these meetings are open to the general public but only members have access to products that are sold.

PROGRAM LIBRARY-

APPLE PI currently has a library of 8,000 programs. All current disks are in 16 sector (3.3, Pascal, CP/M) format and are available to any member. APPLE PI Members can obtain copies from the library:

1) By coming to the monthly informal meeting (swap meet);
2) By written request to the club librarian (at any meeting or by mail);
3) By electronic mail on APPLE PI's bulletin board system:

When requesting copies, please include the following information:

a) Your Name, Address, and Phone number;
b) Disk Category and Volume Number;
c) Blank Diskette(s) or request to utilize a new disk (member will be charged $2.50 for the new disk);
d) Copy fee ($1.00 per diskette side unless you donate a program you have written at the same time and fill out a Progam Submission Form). Only complete sides of disks will be copied.
e) Instructions on how the disks are to be returned, i.e., at the next meeting, by mail, etc. (IF RETURN IS TO BE BY MAIL PLEASE BE SURE TO INCLUDE A STAMPED, SELF-ADDRESSED FLOPPY DISK MAILER, AND $2.50 TO COVER SHIPPING COSTS).

DISK OF THE MONTH-

Each month a collection of some of the best programs donated to APPLE PI during the preceding month are made available. The DOM can be purchased at any group meeting or by mail.

DUES-

Current membership dues are $18.00 per year, with a one-time application fee of $10.00. Checks should be made payable to APPLE PI.

LIBRARIAN'S REPORT

DOM sales in November totaled 31 and 81 Library copies were made! As this is written, the south Core meet has not yet been held. We are continuing to distribute hardcopy catalogs and will have a new version available at the December general meeting.

Seven new disks habve been added to the library in December and are as follows:

PR006	Trivia Game (Is IAC 50 and ProDOS)
PR007	Imageworks/Freewriter (is IAC 51 and boots both DOS and ProDOS on one disk. Old version of Imageworks)
PR008	Enhanced Softgraph (Is IAC 52 and ProDOS)
GR965	Graphics. High Res Picture Library
GR966	Graphics. Dr. Cat Routines known as cat graphics.
GR967	Graphics. Edu-Paint by Steven Dompier and other routines.
ED555	Education. Math programs.

The December DOM contains the programs listed on the label below. This month the theme is Hi-Res graphics with 6 major graphic utilities. Also, the DOM includes 2 arcade type games.

The feature is Silent Night which is not a musical selection but rather another high quality arcade created with Broderbund's Arcade Machine. The other game is Wormy which is a well done machine version on the classic chase theme.

The first graphic utility is a drawing program by Steve Dompier called Edu-Paint and which is much like the Koala Micro-Illustrator program. The remaining graphics programs are selected from the High-Res Program Library which is our new disk GR965. The selections include a font editor, a font writer which will write to a hi-res screen, a shape table displayer, a hi-res picture packer, and a slide show utility called picture displayer. These hi-res programs use the same conventions as the 46 fonts on the Imageworks disk and also support full 128 character fonts included on disk GR965. So, if you are into hi-res graphics at all, you should find the DOM a valuable addition to your library.

Denver Apple Pi's Disk of the Month

65 DEC 1985 DOM

APPLE PI DOM DE	SILENT NIGHT	WORMY	EDU-PAINT
FONT EDITOR	FONT WRITER	PACKER UTILITY	PICTURE DISPLAY
SHAPE DISPLAYER	MENU	HIRES	HI-RES CHARACTE
PACK/UNPACK	PAINT.SP1.OBJ0	PAINT.SP1.OBJ1	PAINT.ST1.OBJ0
PAINT.ST1.OBJ1	PAT.LINES	PAT.SET1	PAT.SHADES
PCA	PENMAN.SHP	PIC.TREE	PICTURES.PICFIL
PS	SANTA.PIC	SETUP	SLANT.SET
T-ALIGNMENT	TCA	TINFO	TS
TRANSITIONS.AMP			

The reverse side of the DOM contains the new ProDOS enhanced Softgraph which will plot data sets from Appleworks on a stand-alone basis or other data as you choose. Sorry, but the DOS 3.3 version of Softgraph on the back of the last DOM was flawed. If you want it replaced, the librarian will copy a working version for you. Remember, there is no December Core meet. Copies will be made at the general meeting at the Green Center.

See you at the general meeting!

-- Ed Thompson, Software Librarian --

SO YOU WANTED AND EARLY DOM

Well, now you can copy it to your disk for the standard $1.00/disk copy charge from the library as long as it is over 12 months old. The Apple Pi Board has established a policy to sell DOM's for $5.00 for the first year, then, after that, move them to the copy library where they may be copied for the standard copy fee.

Early DOM sales have been negligible over the past year, thus the Board has determined that the Club will not maintain a sales inventory past 12 months from issue. These DOM's will be available for copy on request to the library.

Past DOM's contain a literal treasure trove of programs and we encourage you to complete your set through library copying. If you are a newer Club member, the DOM's are a super choice because they are a subset of the best of Apple Public Domain software.

DEAR JOHN

Dear John,

I was thinking of upgrading my Apple //e with the new ROM chips and 65C02. My computer store told me that they must put the chips in and then they keep the old chips. What worries me is that I've heard that some software will not run with the new chips. Is there a way to find out if any of my software will die if I get the upgrade?

Chips

Dear Chips,

It is true that some of the old software does some strange things with the new upgrade ROMs. Because of the new mouse characters in the video ROM, the most obvious bug is software that uses inverse letters in the 80-column card. It would be almost impossible to compile a list of all the programs that may have problems. The only real safe solution is to keep your old chips and swap them back in if a problem comes up. Apple does not get those chips back as any agreement with the dealers, so ask to keep the old chips when you have the upgrade done.

John

Dear John,

What is a ROM blaster? At the last Apple Pi meeting I overheard someone mention it.

Big Ears

Dear Big Ears,

A ROM blaster (or burner) is a device that lets you put programs on a ROM (Read Only Memory) chip. The chips come new with all bits set. The blaster permanently changes them to whatever bit pattern your code produces. Most people who burn their own ROMs use a chip called an EPROM (**E**rasable **P**rogrammable **R**ead **O**nly **M**emory) so if they don't like what they end up with they can erase the chip and start over. You can identify an EPROM by a little round window that lets you see the little chip itself inside.

John

Dear John,

I just got an Apple //c and I have been having a problem. I turn on the computer with the System Master and then put in an Apple Pi disk and it will not work. My other programs seem to work fine, but not Apple Pi's, so I think it's the disk, not the computer. Can you help?

Down With Pi

Dear Down,

It could be that you have a bad disk, but more likely you have the wrong DOS. If you are booting up with ProDOS and then running a Pi DOS 3.3 disk it will not work. Try booting the Pi disk or a DOS 3.3 System Master.

John

Send Questions to:

Johnny Appleseed
P. O. Box 17467
Denver, CO 80217

denver apple pi

GREEN APPLES
UTILITIES

Often computer hacker types, programmers, et.al., use special programs to do a variety of little tasks. These handy little programs are called utilities, and have nothing to do with water and power service. Utilities can be part of a larger commercial program like Appleworks, or can be stand-alone programs like FILER or FID on your ProDOS or DOS 3.3 System Master. Following are a few of the more commonly used types of utilities.

COPYING

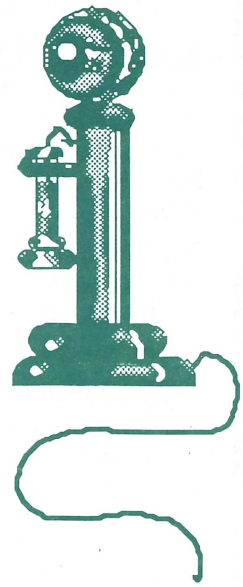
Copy programs come in all kinds of flavors, but do essentially the same thing - they copy complete disks. A wide range of anti-copy devices are often found on commercial programs to try to stop copy programs from doing their job. These anti-copy techniques range from slightly modifying DOS code to burning a hole in a diskette with a laser. Most of the better copy programs, like Locksmith and Copy][+, can beat most protection schemes.

DISK FILES

Most DOS commands like LOCK, UNLOCK, RENAME, VERIFY, and so on, can be done by hand or more efficiently by using disk utilities such as FID. FID and the ProDOS FILER program will let you quickly and efficiently do these tasks to an entire disk or group of selected files at one time. You can accomplish this by using a "**wildcard**". For you non-poker players, a wildcard is something that you can use as a token, word, or symbol that represents anything you want it to represent other than what it is. In cards, a joker may be a wildcard, and if you had three kings and one joker, you could call your hand four kings. In computers, a wildcard is usually a keyboard symbol, like the = sign. You can use a wildcard to pick the files that you wish to work with. For example, if you are using FID to lock files, when asked FILENAME?, type = and all files will be locked. If you type **SP=**, all files that start with **SP** will be locked. If you type **=.OBJ**, all files that end with **.OBJ** will be locked, and so on. Try **SP=.OBJ** sometime. With FID, after you tell it that you're using a wildcard, it will ask you if you want prompting. If you answer NO, then all the files that meet the wildcard condition will be locked (unlocked, or whatever). If you answer YES, then the computer will stop at each filename that meets the wildcard condition, and ask if you wish to include that file in the current operation.

There are other commercial and public domain programs that let you do things beyond FID and FILER, such as customizing catalog listings, sorting files into file types, and other spiffy operations. Companies like Beagle Bros. have long been publishers of such popular programs. You can peruse your favorite computer store, or save $$$ by looking at what's available in the Pi library. Utilities do all of those helpful little whizbang chores that make your computing more entertaining and efficient.

APPLE PI



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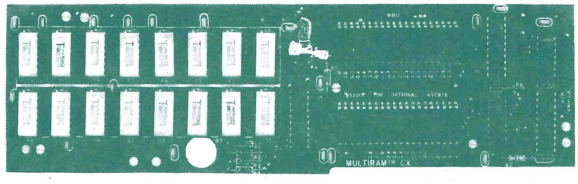

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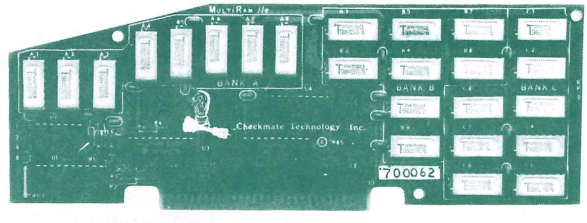

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ProDOS TECHNICAL NOTE #11

The ProDOS Machine Identification Byte

* THIS NOTE SUPERCEDES THE INFORMATION *
* FOUND IN SECTIONS 5.2.3 & 5.3.1. OF THE *
* ProDOS TECHNICAL REFERENCE MANUAL *

(revised 08 May 1984)

The Machine Identification byte (MACHID) in the ProDOS system global page has been redefined to permit identification of future products from Apple Computer, Inc. that may use the ProDOS operating system. The change does not impact any checking for existing systems that your application may now be doing.

The definition of MACHID at $BF98 is:

Bits 7-6	If bit 3 = 0 then	If bit 3 = 1 then
	00 =][	00 = reserved
	01 =][+	01 = reserved
	10 = //e	10 = //c
	11 = /// emulation	11 = reserved

Bits 5-4 00 = reserved, 01 = 48K, 10 = 64K, 11 = 128K

Bit 3 The value of bit 3 determines how bits 7-6 will be interpreted.
See Bits 7-6 definition.

Bit 2 Reserved for future definition

Bit 1 0 = No 80-column card
1 = 80-column card installed

Bit 0 0 = No ThunderClock or equivalent
1 = ThunderClock or equivalent installed

ProDOS TECHNICAL NOTE #12

Interrupt Handling

(1 December 1983)

This technical note expands upon the information found in the ProDOS Technical Reference Manual. It is assumed that the reader has already read and understands the sections regarding interrupts.

This tech note includes a superior example of an interrupt handler for use with ProDOS. The example in the book works properly, however, it will always claim every interrupt whether it came from the clock or not. Additionally, it does not conform to one protocol which will be required in future revisions of ProDOS, nor does it incorporate some common examples of good programming practice.

Vectors for interrupt handlers must be installed and removed with ALLOC_INTERRUPT and DEALLOC_INTERRUPT calls to ProDOS. Even though the vectors appear in the system global page, you must always use only the systems calls...never change the global page entries yourself.

All interrupt routines must commence with a CLD instruction. Although not checked in the initial release of ProDOS, this first byte will be checked in future revisions to verify the validity of the interrupt handler.

Good programming practice dictates that an interrupt handler should preserve the status register (PHP) and mask interrupts (SEI). The coee should restore the status register (PLP) before exit, and before setting or clearing the carry flag as required by ProDOS.

If your application includes an interrupt handler, before you exit:

(1) Turn off the interrupts.. remember, an unclaimed interrupt will cause system death.

(2) Make a DEALLOC_INTERRUPT call before exiting from your application. Don't leave a vector installed that will point to a routine that is gone.

Within your interrupt handler routines, you MUST leave ALL memory banks in the same configuration you found them. DON'T FORGET ANYTHING... main language card, main alternate $D000, main motherboard ROM... and, on an Apple //e...auxiliary language card, auxiliary alternate $D000, alternate zero page and stack, etc.,etc... This is important! The ProDOS interuupt receiver assumes the environment isabsolutely unaltered when your handler relinquishes control.

If your handler recognizes the interrupt and services it, the carry should be cleared (CLC) immediately before returning (RTS). If it was not your interrupt, the carry should be set (SFC) immediately before returning (RTS). Do not use a return from interrupt (RTI) to exit...the ProDOS interrupt receiver still has some housekeeping to perform before it issues the RTI instruction.

Here is a sample routine which will turn on interrupts on a ThunderClock card and print the date and time to the upper right corner of the screen.

```
0300:          0300   1             ORG $300
0300:          C20B   2 WTTCP       EQU $C20B     ; Clock write entry point (Slot 2)
0300:          C208   3 RDTCP       EQU $C208     ; Clock read entry point (Slot 2)
0300:          C080   4 TCICR       EQU $C080     ; Interrupt cont. register (Slot 2)
0300:          C088   5 TCMR        EQU $C088     ; Mystery register (Slot 2)
0300:                 6 *
0300:          0200   7 IN          EQU $200      ; Where the clock leaves the time
0300:                 8 *
0300:          0412   9 UPRIGHT     EQU $412      ; The upper right of the screen
0300:          047A  10 INTON1      EQU $47A      ; Leave interrupts on (Slot 2)
0300:          07FA  11 INTON2      EQU $7FA      ; Leave interrupts on (Slot 2)
0300:                12 *
0300:          BF00  13 MLI         EQU $BF00     ; Entry point to the ProDOS MLI
0300:                14 *
0300:                15 * CALLING INTERRUPTS, CALLING INTERRUPTS
0300:                16 *
0300:20 7E 03        17             JSR ALLOC.INT ; Install interrupt routine
0303:60              18             RTS           ; That's all forks
0304:                19 *
0304:                20 *
0304:          0304  21 SHOWTIME    EQU *
0304:D8              22             CLD
0305:08              23             PHP
0306:78              24             SEI           ; Disable Interrupts
0307:A0 20           25             LDY #$20      ; For slot 2
0309:B9 80 C0        26             LDA TCICR,Y   ; Get Interrupt Control Reg value
030C:29 20           27             AND #$20      ; Bit 5 indicates INT is clock
030E:F0 3C    034C   28             BEQ NOTCLK    ; If bit 5 is off, not from clock
0310:B9 88 C0        29             LDA TCMR,Y    ; Clear mystery register
0313:B9 80 C0        30             LDA TCICR,Y   ; Clear interrupt on hardware
0316:CE 4F 03        31             DEC COUNTER   ; Only print time every second
0319:D0 2E    0349   32             BNE EXITCLK   ; Not time to print yet
031B:                33 *
031B:A2 27           34             LDX #39       ; Save the input buffer
031D:BD 00 02        35 DOIN        LDA IN,X      ; Since the clock writes over it
0320:9D 56 03        36             STA INBUF,X   ; When it is called
0323:CA              37             DEX
0324:10 F7    031D   38             BPL DOIN
0326:                39 *
0326:A9 A5           40             LDA #$A5      ; Set Applesoft string input mode
0328:20 0B C2        41             JSR WTTCP     ; and send it to the card
032B:20 08 C2        42             JSR RDTCP     ; Read time into input buffer
032E:                43 *
032E:A2 15           44             LDX #21
0330:BD 01 02        45 GETNEXT     LDA IN+1,X    ; Print time to screen
0333:9D 12 04        46             STA UPRIGHT,X ; Chars 0-22 of input buffer
0336:CA              47             DEX
0337:10 F7    0330   48             BPL GETNEXT
0339:                49 *
0339:A9 40           50 SETCNTR     LDA #64       ; Set up counter for next time
033B:8D 4F 03        51             STA COUNTER
033E:                52 *
033E:A2 27           53             LDX #39       ; Restore the input buffer
0340:BD 56 03        54 DOIN2       LDA INBUF,X
0343:9D 00 02        55             STA IN,X
0346:CA              56             DEX
0347:10 F7    0340   57             BPL DOIN2
```

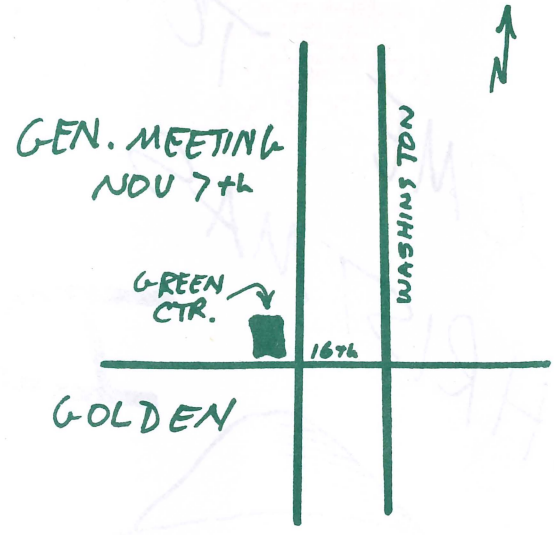
```
0349:                58 *
0349:28              59 EXITCLK   PLP            ; Tell MLI we processed the INT
034A:18              60           CLC
034B:60              61           RTS
034C:28              62 NOTCLK    PLP
034D:38              63           SEC            ; Tell MLI it isn't ours
034E:60              64           RTS
034F:                65 *
034F:        0001    66 COUNTER   DS  1,0
0350:                67 *
0350:02 00           68 AIPARMS   DFB 2,0         ; Put allocate and deallocate
0352:04 03           69           DW  SHOWTIME   ; Interrupt parameters here
0354:                70 *
0354:01 00           71 DIPARMS   DFB 1,0         ; so both routines can use them
0356:                72 *
0356:        0028    73 INBUF     DS  40,0       ; Save 40 bytes of IN here
037E:                74 *                        ; for input buffer save/restore
037E:                75 *
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
037E:20 00 BF        76 ALLOC.INT JSR MLI         ; Call the MLI
0381:40              77           DFB $40         ; to allocate the interrupt
0382:50 03           78           DW  AIPARMS
0384:D0 19   039F    79           BNE OOPS        ; Break on error
0386:                80 *
0386:A0 20           81           LDY #$20
0388:A9 AC           82           LDA #$AC        ; Set 64hz interrupt rate
038A:20 0B C2        83           JSR WTTCP       ; by writing a ',' to clock
038D:A9 40           84           LDA #$40        ; Now enable the software
038F:8D 7A 04        85           STA INTON1      ; and tell it not to disable
0392:8D FA 07        86           STA INTON2      ; interrupts after reads
0395:99 80 C0        87           STA TCICR,Y
0398:A9 01           88           LDA #1          ; Print time immediately
039A:8D 4F 03        89           STA COUNTER     ; Once per second later
039D:58              90           CLI             ; Allow the 6502 to see the
039E:60              91           RTS             ; interrupts
039F:                92 *
039F:00              93 OOPS      BRK             ; Break on error
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
03A0:A9 00           94 DEALLOC.INT LDA #0        ; Disable interrupts
03A2:8D 7A 04        95           STA INTON1      ; in the thunder clock
03A5:8D FA 07        96           STA INTON2
03A8:A0 20           97           LDY #$20
03AA:99 80 C0        98           STA TCICR,Y
03AD:                99 *
03AD:AD 51 03       100           LDA AIPARMS+1   ; GET INT_NUM
03B0:8D 55 03       101           STA DIPARMS+1   ; FOR DEALLOCATION
03B3:20 00 BF       102           JSR MLI         ; CALL THE MLI
03B6:41             103           DFB $41         ; TO DEALLOCATE THE INTERRUPT
03B7:54 03          104           DW  DIPARMS     ; POINTER TO PARAMETER LIST
03B9:D0 01   03BC   105           BNE OOPS2       ; BREAK ON ERROR
03BB:60             106           RTS             ; DONE
03BC:               107 *
03BC:00             108 OOPS2     BRK             ; BREAK ON ERROR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

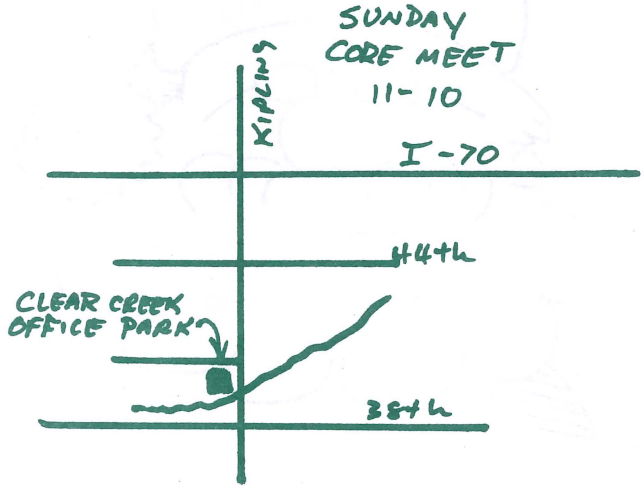
APPLEWORKS SPRADSHEET PRINTER AVAILABLE

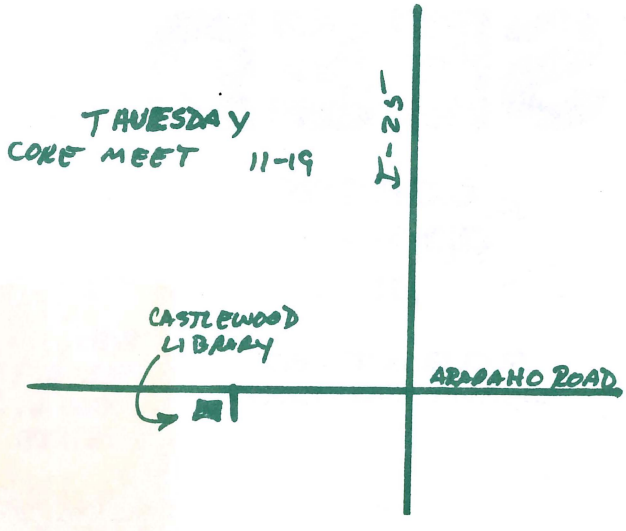
The Apple Pi Store now has available an Appleworks Spreadsheet Printer program called Slalom for $5.00. The program will print out a long Appleworks spreadsheet sideways with a 255 character width to your DMP printer.

The printers supported are the Apple DMP, Imagewriter, and Scribe, the Epson RX or FX, the C.Itoh or NEC 8023, and the Okidata 92 or 93. The interfaces supported are the Apple serial, parallel, super serial, or //c serial, the Grappler, Grappler+, or Grappler Serial, the CCS 7710A serial, 7720 parallel, or 7728 parallel, the Dumpling 64 or GX, the Pkaso and Pkaso/U, the Fingerprint, Printermate, Texprint Print-It, and the Videx Uniprint.

The program comes with an 8-page instruction manual and has additional instructions on disk. It is the very first of its kind for Appleworks and is an exceptional value at $5.00. The program is not Public Domain, however, and must be purchased either from the Pi store or the author John Wrenholdt at the Big Red Apple Club in Norfolk, Nebraska.







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